IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method for optimizing an electrical circuit, comprising the steps of:

a. Providing an objective to be minimized and one or more independently tunable parameters to a derivative-free optimizer, the objective being defined as an objective measurement of the behavior of a circuit;

b. Receiving a value of each of the one or more independently tunable parameters from the derivative-free optimizer;

c. Providing each of the one or more independently tunable parameter values to a circuit simulator;

d. Receiving from the simulator the value of the objective measurement;

e. Providing the objective value to the derivative free optimizer; and

f. Repeating steps (b) through (e) until the derivative-free optimizer determines that the objective has converged to a minimum within a convergence tolerance.

2. (Original) A method as in claim 1, in which the goal of the optimization is to maximize the objective.

3. (Original) A method as in claim 1, in which each of the one or more independently tunable parameters has one of an upper bound, a lower bound, both an upper bound and a lower bound, and neither an upper bound nor a lower bound.

4. (Original) A method as in claim 1, in which the objective to be minimized is a continuous function of one or more objective measurements.

5. (Original) A method as in claim 1, in which one or more additional dependent tunable parameters are simultaneously optimized, each of the one or more additional dependent tunable parameters being defined as a continuous function of the one or more of the independently tunable parameters.

6. (Original) A method for optimizing an electrical circuit, comprising the steps of:

a. Providing an objective to be minimized, one or more constraints to be met, and one or more independently tunable parameters to a derivative-free optimizer, the objective being defined as an objective measurement of the behavior of the circuit and each of the one or more constraints being defined as a constraint measurement of the behavior of the circuit;

b. Receiving a value of each of the one or more independently tunable parameters from the derivative-free optimizer;

c. Providing each of the one or more independently tunable parameters to a circuit simulator;

d. Receiving from the simulator the value of the objective measurement and the value of each of the one or more constraint measurements;

e. Providing the objective value and the value of each of the one or more constraints to the derivative-free optimizer;

f. Repeating steps (b) through (e) until the derivative-free optimizer determines that the objective function has converged to a minimum subject to the one or more of the constraints to within a convergence tolerance.

7. (Original) A method as in claim 6, in which the goal of the optimization is to maximize the objective subject to satisfying each of the one or more of the constraints.

8. (Original) A method as in claim 6, in which each of the one or more independently tunable parameters has one of an upper bound, a lower bound, both an upper bound and a lower bound, and neither an upper bound nor a lower bound.

9. (Original) A method as in claim 6, in which each of the one or more constraints is one of an equality constraint, less-than inequality constraint and greater-than inequality constraint.

10. (Original) A method as in claim 6, in which each of the one or more constraints is one of a linear constraint and a nonlinear constraint.

11. (Original) A method as in claim 6, in which the objective to be minimized is a continuous function of one or more objective measurements.

12. (Original) A method as in claim 6, in which each of the one or more constraints is a continuous function of one or more constraint measurements.

13. (Original) A method as in claim 6, in which one or more additional dependent tunable parameters are simultaneously optimized, each of the one or more additional dependent tunable parameters being defined as a continuous function of the one or more of the independently tunable parameters.

14-31. (Cancelled).

32. (Currently Amended) A method as in claim [1, 6~~, 14, 22~~] in which the simulation of the circuit is in one or more of the time domain and the frequency domain.

33. (Currently Amended) A method as in claim [1, 6~~,14,22~~] <u>further including constraint measurements and sanity measurements on the tunable parameters</u> in which each of the objective measurement, constraint measurements and sanity measurements is one of: a power measurement, a delay measurement, a noise measurement, a transition time measurement, a current measurement, a voltage measurement, an overshoot measurement, an undershoot measurement, a gain measurement, a phase measurement, ~~a noise measurement,~~ a temperature measurement, a component value measurement, a component size measurement, a model parameter measurement and a waveform quality measurement.

34. (Currently Amended) A method as in claim [1, 6~~, 14, 22~~] in which the behavior of the circuit is determined by one or more of computer simulation, emulation, circuit assembly, circuit fabrication and analytic modeling.

35. (Currently Amended) A method as in claim [1, 6~~, 14, 22~~] further including constraint measurements and sanity measurements on the tunable parameters in which the circuit is simulated at a variety of environmental and manufacturing settings, each of the simulations contributing to the objective, constraint and sanity measurements.

36. (Currently Amended) A method as in claim [1, 6~~, 14, 22~~]in which each of the tunable parameters is one of a component value, a model parameter value, a transistor size, a wire size, a wire spacing, an operating temperature, a manufacturing condition and a power supply voltage.

37. (Currently Amended) A method as in claim [1, 6~~, 14, 22~~], the circuit being one or more of a digital circuit, analog circuit, communication circuit, input/output circuit, amplifier circuit and clock distribution circuit.

38. (Currently Amended) A method as in claim [1, 6~~, 14, 22~~] ~~in which the formulation of the circuit optimization problems is~~ wherein the optimizing the electrical circuit includes one of dynamic circuit optimization and static circuit optimization.